Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A method for controlling transmission latency in a communications system, wherein the communications system is subject to a noise signal having at least a first noise phase and a second noise phase, the method comprising:

determining a first bit rate for symbols transmitted during the first noise phase, and a second bit rate for symbols transmitted during the second noise phase, the first bit rate and the second bit rate being constrained such that a transmission latency does not exceed a predetermined maximum allowed transmission latency; and

transmitting symbols at the first bit rate during the first noise phase and at the second bit rate during the second noise phase,

wherein the first noise phase corresponds to a first signal-to-noise ratio, and the second noise phase corresponds to a second signal-to-noise ratio, ~~the second signal-to-noise ratio being higher than the first signal-to-noise ratio,~~

wherein the second bit rate is determined based on the second signal-to-noise ratio, and

wherein the first bit rate is determined ~~based on the second bit rate and the pre-determined maximum allowed transmission latency~~ by an algebraic equation of a combination of definite values that include the second bit rate, the pre-determined maximum allowed transmission latency, a discrete multi-tone symbol duration, a number S_1 of symbols of the first noise phase transmitted during a number C of noise clock

cycles, and a number S_2 of symbols of the second noise phase transmitted during the number C of noise clock cycles.

2. (Previously Presented) The method according to claim 1, further comprising:

communicating the predetermined maximum allowed transmission latency via a message to a receiver of the communications system.

3. (Previously Presented) The method according to claim 2, further comprising:

configuring, in accordance with the first bit rate, a first bit allocation table for symbols transmitted during the first noise phase; and

configuring, in accordance with the second bit rate, a second bit allocation table for symbols transmitted during the second noise phase.

4. (Currently Amended) An apparatus for controlling transmission latency in a communications system, wherein the communications system is subject to a noise signal having at least a first noise phase and a second noise phase, the apparatus comprising:

a constrained rate receiver for determining a first bit rate for symbols transmitted during the first noise phase, and a second bit rate for symbols transmitted during the second noise phase, the first bit rate and the second bit rate being constrained such that a

transmission latency does not exceed a predetermined maximum allowed transmission latency; and

a constrained rate transmitter for transmitting symbols at the first bit rate during the first noise phase and at the second bit rate during the second noise phase,

wherein the first noise phase corresponds to a first signal-to-noise ratio, and the second noise phase corresponds to a second signal-to-noise ratio, ~~the second signal-to-noise ratio being higher than the first signal-to-noise ratio,~~

wherein the second bit rate is determined based on the second signal-to-noise ratio, and

wherein the first bit rate is determined ~~based on the second bit rate and the pre-determined maximum allowed transmission latency~~ by an algebraic equation of a combination of definite values that include the second bit rate, the pre-determined maximum allowed transmission latency, a discrete multi-tone symbol duration, a number S_1 of symbols of the first noise phase transmitted during a number C of noise clock cycles, and a number S_2 of symbols of the second noise phase transmitted during the number C of noise clock cycles.

5. (Previously Presented) The apparatus according to claim 4, wherein the constrained rate transmitter further comprises:

a latency control transmitter for communicating the predetermined maximum allowed transmission latency via a message to the constrained rate receiver.

6. (Previously Presented) The apparatus according to claim 5, wherein the constrained rate receiver further comprises:

a first bit allocation table controller for configuring, in accordance with the first bit rate, a first bit allocation table for symbols transmitted during the first noise phase; and

a second bit allocation table controller for configuring, in accordance with the second bit rate, a second bit allocation table for symbols transmitted during the second noise phase.

7. (Currently Amended) A constrained rate receiver for controlling transmission latency in a communications system, wherein the communications system is subject to a noise signal having at least a first noise phase and a second noise phase, the constrained rate receiver configured to determine a first bit rate for symbols transmitted during the first noise phase, and a second bit rate for symbols transmitted during the second noise phase, the first bit rate and second bit rate being constrained such that a transmission latency does not exceed a predetermined maximum allowed transmission latency, the constrained rate receiver comprising:

a first bit rate controller for determining the first bit rate, wherein the first bit rate is determined by an algebraic equation of a combination of definite values that include the second bit rate, the pre-determined maximum allowed transmission latency, a discrete multi-tone symbol duration, a number S_1 of symbols of the first noise phase transmitted during a number C of noise clock cycles, and a number S_2 of symbols of the

second noise phase transmitted during the number C of noise clock cycles ~~on the second based bit rate and the pre-determined maximum allowed transmission latency~~; and

a second bit rate controller for determining the second bit rate based on a signal-to-noise ratio associated with the second noise phase[[,]]

~~wherein the signal-to-noise ratio associated with the second noise phase is higher than a signal-to-noise ratio associated with the first noise phase~~.

8-9. (Cancelled)

10. (Previously Presented) The constrained rate receiver according to claim 7, further configured to receive a message communicating the predetermined maximum allowed transmission latency.

11. (Previously Presented) The constrained rate receiver according to claim 10, further comprising:

a first bit allocation table controller for configuring, in accordance with the first bit rate, a first bit allocation table for symbols transmitted during the first noise phase; and

a second bit allocation table controller for configuring, in accordance with the second bit rate, a second bit allocation table for symbols transmitted during the second noise phase.

12-13. (Cancelled)

14. (Previously Presented) The constrained rate receiver according to claim 7, wherein the first bit rate controller comprises a controller for determining the first bit rate in accordance with the following equation:

$$R_1 = -R_2 * \frac{S_2}{S_1} * \frac{latency * C + SymTime * S_1}{latency * C - SymTime * S_2}$$

where R_1 is the first bit rate, R_2 is the second bit rate, latency is the predetermined maximum allowed transmission latency, and SymTime is a discrete multi-tone symbol duration, for S_2 symbols of the second noise phase transmitted during a number C of noise clock cycles and S_1 symbols of the first noise phase transmitted during the number C of noise clock cycles.

15. (Previously Presented) The constrained rate receiver according to claim 14, operating in a communications system which is an adaptive rate communications system.

16. (Previously Presented) The constrained rate receiver according to claim 15, wherein the communications system is an asymmetric digital subscriber line communications system.

17-22. (Cancelled)